HEALTHCARE COST AND UTILIZATION PROJECT — HCUP
A FEDERAL-STATE-INDUSTRY PARTNERSHIP IN HEALTH DATA
Sponsored by the Agency for Healthcare Research and Quality

OVERVIEW OF

THE HCUP NATIONWIDE INPATIENT SAMPLE (NIS)

2001

These pages provide only an introductory overview of the NIS package.

Full documentation is provided on the NIS Documentation CD-ROM.

Issued July 2003

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HCUP NATIONWIDE INPATIENT SAMPLE (NIS)
SUMMARY OF DATA USE LIMITATIONS

***** REMINDER *****

All users of the NIS must sign a data use agreement and send a copy to AHRQ. †

Authorized users of HCUP data agree to the following limitations: ‡

- Will not use the data for any purpose other than research or aggregate statistical reporting.

- Will not re-release any data to unauthorized users.

- Will not identify or attempt to identify any individual.

- Will not link HCUP data to data from another source that identifies individuals.

- Will not report information that could identify individual establishments (e.g., hospitals).

- Will not use the data concerning individual establishments for commercial or competitive purposes involving those establishments.

- Will not use the data to determine rights, benefits, or privileges of individual establishments.

- Will not identify or attempt to identify any establishment when its identity has been concealed on the database.

- Will not contact establishments included in the data.

- Will not attribute to data contributors any conclusions drawn from the data.

- Must acknowledge the "Healthcare Cost and Utilization Project, (HCUP)", as described in the Data Use Agreement, in reports.

Any violation of the limitations in the data use agreement is punishable under Federal law by a fine of up to $10,000 and up to 5 years in prison. Violations may also be subject to penalties under State statutes.

† A copy of the Data Use Agreement is included on the NIS Documentation CD-ROM and is included at the end of this document. See next page for AHRQ's address.

‡ Specific provisions are detailed in the Data Use Agreement for Nationwide Inpatient Sample.

HCUP CONTACT INFORMATION

Please submit signed data use agreements to HCUP at:

Agency for Healthcare Research and Quality
Healthcare Cost and Utilization Project (HCUP)
540 Gaither Road, 5th Floor
Rockville, Maryland 20850

Phone: (301) 427-1410
Fax: (301) 427-1430
Website: http://www.ahrq.gov/data/hcup/

For technical assistance,

Visit the AHRQ-sponsored HCUP User Support Website at

http://www.hcup-us.ahrq.gov

Or send an E-mail to HCUP User Support at

hcup@ahrq.gov

Or contact the HCUP Central Distributor at

HCUP Central Distributor
Social & Scientific Systems, Inc.
Phone: (866) 556-4287 (toll-free between the hours of 9 a.m.
and 5 p.m. (ET). If the HCUP Central Distributor is not
immediately available, please leave a message on the voice
mail, and your call will be returned within one business day.)

Fax: (301) 628-3201
E-mail: hcup@s-3.com

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│                    WHAT'S NEW IN THE 2001                             │
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│             NATIONWIDE INPATIENT SAMPLE (NIS)?                        │
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- Five States have joined the NIS in 2001: Michigan, Minnesota, Nebraska, Rhode Island, and Vermont.

- We provide a brief section in this Overview on "How to Use the NIS."

- The 1988 - 2001 NIS are available for purchase through the HCUP Central Distributor sponsored by the Agency for Healthcare Research and Quality:

  > HCUP Central Distributor
  > Social & Scientific Systems, Inc.
  > Phone: (866) 556-4287 (toll-free)
  > FAX: (301) 628-3201
  > E-mail: hcup@s-3.com

  The NIS is no longer available through the National Technical Information Service (NTIS).

- HCUP User Support (HCUP-US) is available online through the AHRQ-sponsored HCUP Website at http://www.hcup-us.ahrq.gov. This Website includes information on HCUP databases, tools, software, reports, and technical assistance.

**The Agency for Healthcare Research and Quality and
the staff of the Healthcare Cost and Utilization Project (HCUP) thank you for
purchasing the HCUP Nationwide Inpatient Sample (NIS).**

HCUP Nationwide Inpatient Sample (NIS)

ABSTRACT

The Nationwide Inpatient Sample (NIS) is part of the Healthcare Cost and Utilization Project (HCUP), sponsored by the Agency for Healthcare Research and Quality (AHRQ), formerly the Agency for Health Care Policy and Research.

The NIS is a database of hospital inpatient stays. Researchers and policymakers use the NIS to identify, track, and analyze national trends in health care utilization, access, charges, quality, and outcomes.

The NIS is the largest all-payer inpatient care database that is publicly available in the United States, containing data from 5 to 8 million hospital stays from about 1000 hospitals sampled to approximate a 20-percent stratified sample of U.S. community hospitals. The NIS is available for a 14-year time period, from 1988 to 2001, allowing analysis of trends over time.

The NIS is the only national hospital database with charge information on all patients, regardless of payer, including persons covered by Medicare, Medicaid, private insurance, and the uninsured. The NIS's large sample size enables analyses of rare conditions, such as congenital anomalies; uncommon treatments, such as organ transplantation; and special patient populations, such as children.

Inpatient stay records in the NIS include clinical and resource use information typically available from discharge abstracts. Hospital and discharge weights are provided for producing national estimates. The NIS can be linked to hospital-level data from the American Hospital Association's Annual Survey of Hospitals and county-level data from the Bureau of Health Professions' Area Resource File, except in those states that do not allow the release of hospital identifiers.

Beginning in 1998, the NIS differs from previous NIS releases: some data elements were dropped, some were added, for some data elements, the coding was changed, and the sampling and weighting strategy was revised to improve the representativeness of the data.

Access to the NIS is open to users who sign data use agreements. Uses are limited to research and aggregate statistical reporting.

For more information on the NIS, visit the AHRQ-sponsored HCUP Website at http://www.hcup-us.ahrq.gov.

INTRODUCTION TO THE HCUP NATIONWIDE INPATIENT SAMPLE (NIS)

OVERVIEW OF NIS DATA

The Nationwide Inpatient Sample contains all-payer data on hospital inpatient stays from States participating in the Healthcare Cost and Utilization Project (HCUP). Each year of the NIS provides information on approximately 5 million to 8 million inpatient stays from about 1,000 hospitals. All discharges from sampled hospitals are included in the NIS database.

The NIS contains patient-level clinical and resource use information included in a typical discharge abstract. The NIS can be linked directly to hospital-level data from the American Hospital Association (AHA) Annual Survey of Hospitals and to county-level data from the Health Resources and Services Administration Bureau of Health Professions' Area Resource File (ARF), except in those states that do not allow the release of hospital identifiers.

The NIS is designed to approximate a 20-percent sample of U.S. community hospitals, defined by the AHA to be "all nonfederal, short-term, general, and other specialty hospitals, excluding hospital units of institutions." Included among community hospitals are specialty hospitals such as obstetrics-gynecology, ear-nose-throat, short-term rehabilitation, orthopedic, and pediatric institutions. Also included are public hospitals and academic medical centers. Excluded are short-term rehabilitation hospitals (beginning with 1998 data), long-term hospitals, psychiatric hospitals, and alcoholism/chemical dependency treatment facilities.

This universe of U.S. community hospitals is divided into strata using five hospital characteristics: ownership/control, bed size, teaching status, urban/rural location, and U.S. region.

The NIS is a stratified probability sample of hospitals in the frame, with sampling probabilities proportional to the number of U.S. community hospitals in each stratum. The frame is limited by the availability of inpatient data from the data sources.

In order to improve the representativeness of the NIS, the sampling and weighting strategy was modified beginning with the 1998 data. The full description of this process can be found in the special report on *Changes in NIS Sampling and Weighting Strategy for 1998.* This report is available on the 2001 NIS Documentation CD-ROM and on the AHRQ-sponsored HCUP Website at http://www.hcup-us.ahrq.gov. To facilitate the production of national estimates, both hospital and discharge weights are provided, along with information necessary to calculate the variance of estimates. Detailed information on the design of the NIS is available in the year-specific special reports on *Design of the Nationwide Inpatient Sample* found on the NIS Documentation CD-ROM.

NIS data sets are currently available for multiple years, as shown in Table 1. Each release of the NIS includes:
- C   Data in fixed-width ASCII format on CD-ROM.
- C   Patient-level hospital discharge abstract data for 100 percent of discharges from a sample of hospitals in participating States.
- C   5 million to 8 million inpatient records per year.
- C   800-1,000 hospitals per year.
- C   Two 10% subsamples of discharges from all NIS hospitals.
- C   Discharge-level weights to calculate national estimates for discharges.
- C   Hospital Weights File to produce national estimates for hospitals and to link the NIS to data from the American Hospital Association Annual Survey of Hospitals.
- C   NIS Documentation and tools, also on CD-ROM – including file specifications, programming source code for loading ASCII data into SAS and SPSS, and value labels.

Table 1. Summary of NIS Releases

Data from	Media/format options	Structure of Releases
▪ 1988-1992 ▪ 8 States in 1988 ▪ 11 States in 1989-1992	On CD-ROM, in ASCII format	5 years of data in a 6-CD set, compressed files Two 10% subsamples of discharges for each year
▪ 1993 ▪ 17 states ▪ 1994 ▪ 17 states ▪ 1995 ▪ 19 states ▪ 1996 ▪ 19 states ▪ 1997 ▪ 22 states ▪ 1998 ▪ 22 states ▪ 1999 ▪ 24 states ▪ 2000 ▪ 28 states ▪ 2001 ▪ 33 states	On CD-ROM, in ASCII format	1 year of data in a 2-CD set, compressed files Two 10% subsamples of discharges for each year

NIS Data Sources, Hospitals, and Inpatient Stays

Table 2 summarizes the data sources, number of hospitals, and number of weighted and unweighted inpatient stays in NIS data.

Table 2. Summary of NIS Data Sources, Hospitals and Inpatient Stays, 1988-2001

Year	Data sources	Number of hospitals	Number of discharges in the NIS, unweighted	Number of discharges in the NIS, weighted for national estimates
1988	CA CO FL IL IA MA NJ WA	759	5,265,756	35,171,448
1989	AZ CA CO FL IL IA MA NJ PA WA WI *(Added AZ, PA, WI)*	882	6,110,064	35,104,645
1990	AZ CA CO FL IL IA MA NJ PA WA WI *(No change)*	871	6,268,515	35,215,397
1991	AZ CA CO FL IL IA MA NJ PA WA WI *(No change)*	859	6,156,188	35,036,492
1992	AZ CA CO FL IL IA MA NJ PA WA WI *(No change)*	856	6,195,744	35,011,385
1993	AZ CA CO CT FL IL IA KS MD MA NJ NY OR PA SC WA WI *(Added CT, KS, MD, NY, OR, SC)*	913	6,538,976	34,714,530
1994	AZ CA CO CT FL IL IA KS MD MA NJ NY OR PA SC WA WI *(No change)*	904	6,385,011	34,622,203
1995	AZ CA CO CT FL IL IA KS MD MA MO NJ NY OR PA SC TN WA WI *(Added MO, TN)*	938	6,714,935	34,791,998
1996	AZ CA CO CT FL IL IA KS MD MA MO NJ NY OR PA SC TN WA WI *(No change)*	906	6,542,069	34,874,386
1997	AZ CA CO CT FL GA HI IL IA KS MD MA MO NJ NY OR PA SC TN UT WA WI *(Added GA, HI, UT)*	1,012	7,148,420	35,408,207
1998	AZ CA CO CT FL GA HI IL IA KS MD MA MO NJ NY OR PA SC TN UT WA WI *(No change)*	984	6,827,350	34,874,001
1999	AZ CA CO CT FL GA HI IL IA KS MD MA ME MO NJ NY OR PA SC TN UT VA WA WI *(Added ME, VA)*	984	7,198,929	35,467,673
2000	AZ CA CO CT FL GA HI IL IA KS KY MD MA ME MO NC NJ NY OR PA SC TN TX UT VA WA WI WV *(Added KY, NC, TX, WV)*	994	7,450,992	36,417,565
2001	AZ CA CO CT FL GA HI IL IA KS KY MD MA ME MI MN MO NC NE NJ NY OR PA RI SC TN TX UT VA VT WA WI WV *(Added MI, MN, NE, RI, VT)*	986	7,452,727	37,187,641

State-Specific Restrictions

Some data sources that contributed data to the NIS imposed restrictions on the release of certain data elements or on the number and types of hospitals that could be included in the database. Because of confidentiality laws, some data sources were prohibited from providing HCUP with discharge records that indicated specific medical conditions, such as HIV/AIDS or behavioral health. Detailed information on these state-specific restrictions is available in the report on *Sources of NIS Data and State-specific Restrictions* on the NIS Documentation CD-ROM.

Contents of CD-ROM Set

There are two types of files included in the NIS: 1) data files and 2) documentation and tools files.

1) Data Files - three types of fixed-width ASCII formatted data files are included in the NIS:

    Inpatient Core File: This inpatient discharge-level file contains data for 100% of the discharges from a sample of hospitals in participating states. The unit of observation is an *inpatient stay record*. See Table 3 for a list of data elements in the Inpatient Core File.

    Subsample Inpatient Core Files: Each of these discharge-level files contain all data elements from the Core File, for a 10% subsample of discharges from the NIS; these can be combined to create a 20% NIS subsample. These files can be useful for testing programs or validating models. The unit of observation is an *inpatient stay record*. See Table 3 for a list of data elements in the Inpatient Core Files.

    Hospital Weights File: This hospital-level file contains one observation for each hospital included in the NIS and contains weights and variance estimation data elements, as well as linkage data elements. The unit of observation is the *hospital*. The HCUP hospital identifier (HOSPID) provides the linkage between the NIS Inpatient Core files and the Hospital Weights file. See Table 4 for a list of data elements in the Hospital Weights File.

2) Documentation and Tools Files

    Documentation: Complete file documentation, variable notes, and summary statistics are provided in a series of Portable Document Format (*.pdf) files. These files are detailed in Table 6.

    SAS source code: Code is included for the format library for the variables and for loading ASCII data into SAS format.

    SPSS source code: Code is included for the variable library and for loading ASCII data into SPSS format.

    Labels: Labels for the Clinical Classifications Software (CCS), formerly called the Clinical Classifications for Health Policy Research (CCHPR), and for the Diagnosis-Related Groups (multiple versions).

    File Specifications: Record layouts for all data files.

NIS Data Elements

All releases of the NIS contain two types of data: inpatient stay records and hospital information with weights. Table 3 and Table 4 identify the data elements that can be found in the inpatient stay and hospital weights files, respectively. Not all data elements in the NIS are uniformly coded or available across all States. This is not complete documentation for the data; please refer to the NIS Documentation CD-ROM for full documentation on all data elements, for summary statistics, and for the record layout.

Table 3. Data Elements in the NIS Inpatient Core Files, Starting in 1998
Note: Beginning in 1998, the NIS differs from previous NIS releases; some data elements were dropped, some added, and for some data elements the values were changed.

Data Element	Description (numbers in brackets indicate variable coding)
AGE	Age in years at admission
AGEDAY	Age in days (coded only when the age in years is less than 1) at admission
AMONTH	Admission month
ASOURCE	Admission source: (1) ER, (2) another hospital, (3) another facility including long-term care, (4) court/law enforcement, (5) routine/birth/other
ASOURCE_X	Admission source, as received from data source. Available beginning in 1998. *
ATYPE	Admission type: (1) emergency, (2) urgent, (3) elective, (4) newborn, (6) other
AWEEKEND	Admission on weekend: (0) admission on Monday-Friday, (1) admission on Saturday-Sunday. AWEEKEND is available beginning in 1998. In 1988-1997, the data element admission day of week (ADAYWK) is available.
DIED	Indicates in-hospital death: (0) did not die during hospitalization, (1) died during hospitalization
DISCWT	Discharge weight on Core file and Hospital Weights file. In all data years except 2000, this weight is used to create national estimates for all analyses. In 2000 only, this weight is used to create national estimates for all analyses excluding those that involve total charges. Discharge weights to the sample frame and state are available only in 1988-1997.
DISCWT10	Discharge weight on 10% subsample file. In all data years except 2000, this weight is used to create national estimates for all analyses. In 2000 only, this weight is used to create national estimates for all analyses excluding those that involve total charges.
DISCWTcharge	Discharge weight for national estimates of total charges on Core file and Hospital Weights file. Only available in 2000.
DISCWTcharge10	Discharge weight for national estimates of total charges on 10% subsample file. Only available in 2000.

Table 3. Data Elements in the NIS Inpatient Core Files, Starting in 1998 (Continued)

Data Element	Description (numbers in brackets indicate variable coding)
DISPUB92	Disposition of patient (discharge status), UB92 coding: (1) routine, (2) short term hospital, (3) skilled nursing facility, (4) intermediate care, (5) another type of facility, (6) home health care, (7) against medical advice, (8) home IV provider, (20) died in hospital, (40) died at home, (41) died in a medical facility, (42) died, place unknown, (50) Hospice, home, (51) Hospice, medical facility, (61) hospital-based Medicare approved swing bed, (62) another rehabilitation facility, (63) long term care hospital, (71) another institution for outpatient services, (73) this institution for outpatient services, (99) discharged alive, destination unknown. Less detail is available in the data element DISPUniform (beginning in 1998) and in DISP (from 1988-1997).
DISPUniform	Disposition of patient (discharge status), uniform coding: (1) routine, (2) transfer to short term hospital, (5) other transfers, including skilled nursing facility, intermediate care, and another type of facility, (6) home health care, (7) against medical advice, (20) died in hospital, (99) discharged alive, destination unknown
DQTR	Discharge quarter
DRG	Diagnosis Related Group (DRG) in use on discharge date
DRG10	DRG Version 10 (effective October 1992 - September 1993). Discontinued in 2000.
DRG18	DRG Version 18 (effective October 2000 - September 2001). Available beginning in 1998.
DRGVER	Grouper version in use on discharge date
DSHOSPID	Hospital number as received from the data source
DX1-DX15	Principal and secondary diagnoses
DXCCS1-DXCCS15	Clinical Classifications Software (CCS) category for all diagnoses
FEMALE	Gender of patient: (0) male, (1) female
HOSPID	HCUP hospital number (links to Hospital Weights file)
HOSPST	State postal code for hospital (e.g., AZ for Arizona)
HOSPSTCO	Modified Federal Information Processing Standards (FIPS) State/county code for hospital, links to Area Resource File (available from the Bureau of Health Professions, Health Resources and Services Administration)
KEY	Unique record number
LOS	Length of stay, edited
LOS_X	Length of stay, as received from data source
MDC	Major Diagnosis Category (MDC) in use on discharge date
MDC10	MDC Version 10 (effective October 1992 - September 1993). Discontinued in 2000.
MDC18	MDC Version 18 (effective October 2000 - September 2001). Available beginning in 1998.

Table 3. Data Elements in the NIS Inpatient Core Files, Starting in 1998 (Continued)

Data Element	Description (numbers in brackets indicate variable coding)
MDID_S	Synthetic attending physician number, available prior to 2001. This data element was renamed MDNUM1_S beginning in 2001.
MDNUM1_S	Synthetic attending physician number . This data element was called MDID_S prior to 2001 and was renamed beginning in 2001.
MDNUM2_S	Synthetic secondary physician number. This data element was called SURGID_S prior to 2001 and was renamed beginning in 2001.
NDX	Number of diagnoses coded on the original record
NEOMAT	Neonatal/maternal flag: (0) not maternal or neonatal, (1) maternal diagnosis or procedure, (2) neonatal diagnosis, (3) maternal and neonatal on same record
NIS_STRATUM	Stratum used to sample hospitals, based on geographic region, control, location/teaching status, and bed size
NPR	Number of procedures coded on the original record
PAY1	Expected primary payer, uniform: (1) Medicare, (2) Medicaid, (3) private including HMO, (4) self-pay, (5) no charge, (6) other
PAY1_X	Expected primary payer, as received from the data source. Available beginning in 1998. *
PAY2	Expected secondary payer, uniform: (1) Medicare, (2) Medicaid, (3) private including HMO, (4) self-pay, (5) no charge, (6) other
PAY2_X	Expected secondary payer, as received from the data source. Available beginning in 1998. *
PR1-PR15	Principal and secondary procedures
PRCCS1-PRCCS15	Clinical Classifications Software (CCS) for all procedures
PRDAY1-PRDAY15	For each procedure, the number of days from admission. Day of secondary procedures available beginning in 1998.
RACE	Race includes (1) white, (2) black, (3) Hispanic, (4) Asian or Pacific Islander, (5) Native American, (6) other. This data element is not available in all states.
SURGID_S	Synthetic second physician number, available prior to 2001. This is often the primary surgeon. This data element was renamed MDNUM2_S beginning in 2001.
TOTCHG	Total charges, edited
TOTCHG_X	Total charges, as received from data source
YEAR	Calendar year
ZIPINC	Median household income for patient's ZIP Code: (1) $1-$24,999, (2) $25,000-$34,999, (3) $35,000-$44,999, (4) $45,000 and above

*For categorical data elements with _X suffix, see Description of Data Elements (on the NIS Documentation CD-ROM) for state-specific coding.

Table 4. Data Elements in the NIS Hospital Weights File, Starting in 1998
Note: Beginning in 1998, the NIS differs from previous NIS releases; some data elements were dropped, some added, and for some data elements the values were changed.

Data Element	Description (numbers in brackets indicate variable coding)
AHAID	AHA hospital identifier that matches AHA Annual Survey of Hospitals (not available for all states)
DISCWT	Discharge weight on Core file and Hospital Weights file. In all data years except 2000, this weight is used to create national estimates for all analyses. In 2000 only, this weight is used to create national estimates for all analyses excluding those that involve total charges. Discharge weights to the sample frame and state are available only in 1988-1997.
DISCWTcharge	Discharge weight for national estimates of total charges on Core file and Hospital Weights file. Only available in 2000.
HOSPADDR	Hospital address from AHA Survey (not available for all states)
HOSPCITY	Hospital city from AHA Survey (not available for all states)
HOSPID	HCUP hospital number (links to inpatient Core files)
HOSPNAME	Hospital name from AHA Survey (not available for all states)
HOSPST	Hospital state postal code for hospital (e.g., AZ for Arizona)
HOSPWT	Weight to hospitals in AHA universe
HOSPZIP	Hospital zip code from AHA Survey (not available for all states)
HOSP_BEDSIZE	Bed size of hospital: (1) small, (2) medium, (3) large
HOSP_CONTROL	Control/ownership of hospital: (0) government or private, collapsed category, (1) government, nonfederal, public, (2) private, non-profit, voluntary, (3) private, invest-own, (4) private, collapsed category
HOSP_LOCATION	Location: (0) rural, (1) urban
HOSP_LOCTEACH	Location/teaching status of hospital: (1) rural, (2) urban non-teaching, (3) urban teaching
HOSP_REGION	Region of hospital: (1) Northeast, (2) Midwest, (3) South, (4) West
HOSP_TEACH	Teaching status of hospital: (0) non-teaching, (1) teaching
IDNUMBER	AHA hospital identifier without the leading 6 (not available for all states)
NIS_STRATUM	Stratum used to sample hospitals; includes geographic region, control, location/teaching status, and bed size
N_DISC_U	Number of AHA universe discharges in NIS_STRATUM
N_HOSP_U	Number of AHA universe hospitals in NIS_STRATUM
S_DISC_U	Number of sample discharges in NIS_STRATUM
S_HOSP_U	Number of sample hospitals in NIS_STRATUM
TOTAL_DISC	Total number of discharges from this hospital in the NIS
YEAR	Calendar year

SAMPLING OF HOSPITALS INCLUDED IN THE NIS

The hospital universe is defined by all hospitals that were open during any part of each calendar year and were designated as community hospitals in the AHA Annual Survey of Hospitals.

For more information on how hospitals in the data were mapped to hospitals as defined by the AHA, refer to the special report: *HCUP Hospital Identifiers*. For a list of all data sources, refer to: *Sources of NIS Data and State-Specific Restrictions*. For more detailed descriptions of the sampling design, refer to the year-specific special reports *Design of the HCUP Nationwide Inpatient Sample*. All reports can be found on the NIS Documentation CD-ROM.

Stratification Variables

To help ensure generalizability, five hospital sampling strata were defined based on hospital characteristics contained in the AHA Annual Survey of Hospitals. The stratification variables are:

1) *Geographic Region – Northeast, Midwest, West, or South*. This is based on the U.S. Census regions.

2) *Location – urban or rural*. A metropolitan statistical area is considered urban.

3) *Teaching Status – teaching or non-teaching*. A hospital is considered to be a teaching hospital if it has an AMA-approved residency program, is a member of the Council of Teaching Hospitals (COTH) or has a ratio of full-time equivalent interns and residents to beds of .25 or higher.

4) *Control – government nonfederal (public), private not-for-profit (voluntary) or private investor-owned (proprietary).* When there were enough hospitals of each type to allow it (southern rural, southern urban non-teaching, and western urban non-teaching), hospitals were stratified as public, voluntary, and proprietary. For smaller strata (north central rural and western rural hospitals) a collapsed stratification of public versus private was used, with the voluntary and proprietary hospitals combined to form a single 'private' category. For all other combinations of region, location and teaching status, no stratification based on control was advisable given the number of hospitals in these cells.

5) *Bed size – small, medium, or large*. Bed size categories are based on hospital beds, and are specific to the hospital's location and teaching status, as shown in Table 5 (on the following page). Bed size cutpoints were chosen so that approximately one-third of the hospitals in a given region and location/teaching combination would be in each bed size category (small, medium, or large). Rural hospitals were not split according to teaching status, because rural teaching hospitals were rare.

Table 5. Bed Size Categories, by Region

Location and Teaching Status	Hospital Bed size		
	Small	**Medium**	**Large**
NORTHEAST			
Rural	1-49	50-99	100+
Urban, non-teaching	1-124	125-199	200+
Urban, teaching	1-249	250-424	425+
MIDWEST			
Rural	1-29	30-49	50+
Urban, non-teaching	1-74	75-174	175+
Urban, teaching	1-249	250-374	375+
SOUTH			
Rural	1-39	40-74	75+
Urban, non-teaching	1-99	100-199	200+
Urban, teaching	1-249	250-449	450+
WEST			
Rural	1-24	25-44	45+
Urban, non-teaching	1-99	100-174	175+
Urban, teaching	1-199	200-324	325+

To further ensure geographic representativeness, implicit stratification variables included state and three-digit zip code (the first three digits of the hospital's five digit zip code). The hospitals were sorted according to these variables prior to systematic random sampling. For more detailed descriptions of the stratification and sample design, refer to the year-specific special reports *Design of the HCUP Nationwide Inpatient Sample* which can be found on the NIS Documentation CD-ROM.

GETTING STARTED

NIS information is provided on two CD-ROMs. The NIS data files are on CD-ROM #1 and the NIS documentation and tools are on CD-ROM #2.

NIS Data Files

In order to load NIS data onto your PC, you will need 5 gigabytes of space available. Because of the size of the files, the data are distributed as self-extracting PKZIP compressed files. To decompress the data, you should follow these steps:

1. Create a directory for the NIS on your hard drive.
2. Copy the self-extracting data files from the NIS Data Files CD-ROM into the new directory.
3. Unzip each file by running the corresponding *.exe file.
    - Type the file name within DOS or click on the name within Windows Explorer.
    - Edit the name of the "Unzip To Folder" in the WinZip Self-Extractor dialog to select the desired destination directory for the extracted file.
    - Click on the "Unzip" button.

The ASCII data files will then be uncompressed into this directory. After the files are uncompressed, the *.exe files can be deleted.

NIS Documentation

NIS documentation files on the Documentation CD-ROM provide important resources for the user. Refer to these resources to understand the structure and content of the NIS and to aid in using the NIS. Many of the documentation files are provided in portable document format (*.pdf) files. Files with the *.pdf extension can be viewed, searched, and printed using the Adobe Acrobat Reader®.

You must have the Adobe Acrobat Reader software on your computer to access the NIS documentation. If you do not have Adobe Acrobat Reader software on your computer, see the DOCUMENTATION.README.TXT file on NIS Documentation CD-ROM for instructions on installing or obtaining the software.

The Acrobat Reader provided on the NIS Documentation CD-ROM is for IBM-compatible microcomputers running Microsoft Windows 95 or higher. More information and Acrobat Reader software for other platforms (DOS, Windows 3.1, Macintosh, Sun Systems, etc.) may be obtained free of charge from the Adobe Home Page at http://www.adobe.com/. For further assistance in installing and running the Adobe Acrobat Reader on your computer platform, please consult your local support personnel.

Table 6 describes the documentation and tools files that can be found on the NIS Documentation CD-ROM and illustrates the structure of the directories and subdirectories on the CD. All NIS documentation is also available on the AHRQ-sponsored HCUP Website at http://www.hcup-us.ahrq.gov.

Table 6. NIS Documentation CD-ROM

Directory	Description
Root	Includes: • DOCUMENTATION.README.TXT file with introductory information on accessing the NIS documentation
/General Information	Includes: • Overview of the NIS (PDF file) • Sources of NIS Data and State-Specific Restrictions (PDF file) • Data Use Agreement for the Nationwide Inpatient Sample (PDF file)
/Special Reports	Includes: • Design of the Nationwide Inpatient Sample (PDF file) • Changes in NIS Sampling and Weighting Strategy for 1998 (PDF file) • NIS Comparison Report, 2000 (PDF file) • Calculating Variances using Data from the HCUP Nationwide Inpatient Sample, 2001 (PDF file) • HCUP Coding Practices (PDF file) • HCUP Quality Control Procedures (PDF file) • HCUP Hospital Identifiers (PDF file)
/File Specifications	Includes data set name, number of records, record length, and record layout. One file per data file: Core, Core Subsample #1, Core Subsample #2, and Hospital Weights. (Text files)
/Description of Data Elements	Includes information on all NIS variables such as uniform coding and state-specific information. One file per data type: Core and Hospital Weights. (PDF files)
/Summary Statistics	Includes summary statistics (means and frequencies) on NIS data. One file per data file: Core, Core Subsample #1, Core Subsample #2, and Hospital Weights. (PDF files)
/SAS Load Programs	SAS programming code to convert ASCII data files into SAS. One file per data file: Core, Core Subsample #1, Core Subsample #2, and Hospital Weights. (Text files)
/SPSS Load Programs	SPSS programming code to convert ASCII data files into SPSS. One file per data file: Core, Core Subsample #1, Core Subsample #2, and Hospital Weights. (Text files)
/HCUP Tools_Labels	Includes: • Label file for the Clinical Classifications Software (CCS), a categorization scheme that groups ICD-9-CM diagnosis and procedure codes into mutually exclusive categories. (Text file) • Label file for Diagnosis Related Groups (DRGs), multiple versions provided (Text file) • SAS code to create format library of variable labels (Text file)
/Adobe Acrobat Reader	Adobe Acrobat Reader files for IBM compatible for Microsoft Windows 95 or higher. (One text, one HTML, and one application file)

HOW TO USE THE NIS

This section provides a brief synopsis of special considerations when using the NIS. For more details see detailed documentation under Special Reports, Description of Data Elements, and Summary Statistics.

- If anyone other than the original purchaser uses the NIS data, be sure to have them read and sign a data use agreement. A copy of the signed data use agreements must be sent to AHRQ. See page 2 for the mailing address. A copy of the data use agreement is at the end of this document.

- The NIS contains discharge-level records, not patient-level records. This means that individual patients who are hospitalized multiple times in one year may be present in the NIS multiple times. There is no uniform patient identifier available that allows a patient-level analysis with the NIS. This will be especially important to remember for certain conditions for which patients may be hospitalized multiple times in a single year.

Creating National Estimates

- To produce national estimates, use one of the following discharge weights to weight discharges in the NIS Core files to the discharges from all U.S. community, non-rehabilitation hospitals. The name of the discharge weight data element depends on the year of data, the type of analysis, and whether you are using the Core file or the 10% subsample Core file.

NIS Year	Name of Discharge Weight on the **Core File** to Use for Creating Nationwide Estimates	Name of Discharge Weight on the **10% Subsample Core File** to Use for Creating Nationwide Estimates
2001	• DISCWT for all analyses	• DISCWT10 for all analyses
2000	• DISCWT to create nationwide estimates for all analyses except those that involve total charges.	• DISCWT10 to create nationwide estimates for all analyses except those that involve total charges.
	• DISCWTCHARGE to create nationwide estimates of total charges.	• DISCWTCHARGE10 to create nationwide estimates of total charges.
1998-1999	• DISCWT for all analyses	• DISCWT10 for all analyses
1988-1997	• DISCWT_U for all analyses	• D10CWT_U for all analyses

- Because the NIS is a stratified sample, proper statistical techniques must be used to calculate standard errors and confidence intervals. For detailed instructions, refer the special report *Calculating Variances using Data from the HCUP Nationwide Inpatient Sample, 2001* on the NIS Documentation CD-ROM.

- The NIS Comparison Report provides an assessment of the accuracy of NIS estimates. The most recent NIS Comparison Report is provided on the NIS Documentation CD-ROM and usually compares the previous year's NIS with other data sources. The updated NIS Comparison Report for the current NIS will be available on the HCUP website later in the year of data release (e.g., the *2001 Comparison Report* will be available in fall of 2003).

- When creating national estimates, it is a good idea to check your estimates against other data sources, if available. For example, the National Hospital Discharge Survey (http://www.cdc.gov/nchs/products/pubs/pubd/series/sr13/ser13.htm) can provide benchmarks against which to check your national estimates for hospitalizations with more than 5000 cases.

- When using the 10% subsample files, use the specially created subsample weight, DISCWT10 (the discharge weight multiplied by 10). When using the hospital weights with the subsample files, there is no need to multiply the hospital weights because all hospitals will be represented in the subsample files.

Studying Trends

- When studying trends over time using the NIS, be aware that the sampling frame for the NIS changes almost annually, i.e., more states have been added over time. Estimates from earlier years of the NIS may be subject to more sampling bias than later years of the NIS.

- Short-term rehabilitation hospitals are included in the 1988-1997 NIS, but are excluded from the NIS beginning in 1998. Patients treated in rehabilitation hospitals tend to have lower mortality rates and longer lengths of stay than patients in other community hospitals. The elimination of rehabilitation hospitals may affect trends but the effect is likely small since only about 3 percent of community hospitals are short-term rehabilitation hospitals and not all state data sources included short term rehabilitation hospitals

Choosing Data Elements for Analysis

- For all data elements you plan to use in your analysis, first perform descriptive statistics and examine the range of values, including number of missing cases. Summary statistics for the entire NIS are provided in the "Summary Statistics" directory on the NIS Documentation CD-ROM. When you detect anomalies (such as large numbers of missing cases), perform descriptive statistics by state for that variable to detect if there state-specific differences. Sometimes performing descriptive statistics by hospital can be helpful.

- Not all data elements in the NIS are provided by each state data source. These data elements are provided on the NIS because they can be valuable for research purposes but they should be used cautiously. For example, RACE is missing for a number of states thus national estimates using RACE should be interpreted and reported with caveats. Run frequencies by state to identify if a data element is not available in one or more states.

- There are differences across the state data sources in the collection of information that could not be accounted for during HCUP processing to make the data uniform. Be sure to read state-specific notes for each data element that you use in your analysis – this information can be found under "Description of Data Elements" on the NIS Documentation CD-ROM.

- Data elements with "_X" suffixes contain state-specific coding, i.e., these data elements are provided by the data sources and have not been altered in any way. For some data elements (e.g., LOS_X and TOTCHG_X) this means that no edit checks have been applied. For other data elements (e.g., PAY1_X), the coding is specific to each state and may not be comparable to any other state.

ICD-9-CM Diagnosis and Procedure Codes

- ICD-9-CM diagnosis and procedure codes provide valuable insights into the reasons for hospitalization and what procedures patients receive, but these codes need to be carefully used and interpreted. ICD-9-CM codes change every October as new codes are introduced and some codes are retired.

- Although the NIS contains up to 15 diagnoses and 15 procedures, the number of diagnoses

and procedures varies by state. Some states provide as many as 30 diagnoses and 21 procedures, while other states provide as few as 10 diagnoses and 6 procedures. Because very few cases have more than 15 diagnoses or procedures, this information was deleted to save space in the NIS data files. Two variables are provided which tell you exactly how many diagnoses and procedures were on the original records (NDX and NPR).

- The collection and reporting of external cause of injury (E-codes) varies greatly across states. Some States have laws or mandates for the collection of E-codes; others do not. Some States do not require hospitals to report E-codes in the range 870-879 "misadventures to patients during surgical and medical care" which means that these occurrences will be underreported. Be sure to read the state-specific notes on diagnoses for more details - this can be found under "Description of Data Elements" on the NIS Documentation CD-ROM.

OTHER HCUP PRODUCTS

Information on HCUP products and services is available on the World Wide Web on the AHRQ Website http://www.ahrq.gov/data/hcup/. HCUP User Support is available at http://www.hcup-us.ahrq.gov.

DATABASES

Nationwide Inpatient Sample (NIS) is a nationwide database of hospital inpatient stays. The NIS is the largest all-payer inpatient care database that is publicly available in the United States, containing data from 5 to 8 million hospital stays from about 1000 hospitals sampled to approximate a 20-percent stratified sample of U.S. community hospitals. The NIS is available for a 14-year time period, from 1988 to 2001, allowing analysis of trends over time. For more information, visit the HCUP User Support Website at http://www.hcup-us.ahrq.gov or contact the HCUP Central Distributor (detailed below).

State Inpatient Databases (SID) are hospital inpatient databases from Data Organizations participating in HCUP. The SID contain the universe of the inpatient discharge abstracts in the participating HCUP States, translated into a uniform format to facilitate multi-State comparisons and analyses. Together, the SID encompass about 80 percent of all U.S. community hospital discharges. For more information, visit the HCUP User Support Website at http://www.hcup-us.ahrq.gov or contact the HCUP Central Distributor (see below).

State Ambulatory Surgery Databases (SASD) are outpatient databases from Data Organizations in participating HCUP States, which capture surgeries performed on the same day in which patients are admitted and released. The SASD contain the ambulatory surgery encounter abstracts in participating States, translated into a uniform format to facilitate multi-State comparisons and analyses. All of the databases include abstracts from hospital-affiliated ambulatory surgery sites. Some contain the universe of ambulatory surgery encounter abstracts for that State, including records from both hospital-affiliated and freestanding surgery centers. Composition and completeness of data files may vary from State to State. For more information, visit the HCUP User Support Website at http://www.hcup-us.ahrq.gov or contact the HCUP Central Distributor (see below).

Kids' Inpatient Database (KID) is a unique database of hospital inpatient stays for children 18 years of age and younger. The 1997 and 2000 KID was specifically designed to permit researchers to study a broad range of conditions and procedures related to child health issues. For more information, visit the HCUP User Support Website at http://www.hcup-us.ahrq.gov or contact the HCUP Central Distributor (see below).

HCUP CENTRAL DISTRIBUTOR

HCUP databases are available for purchase through the AHRQ-sponsored HCUP Central Distributor. All years of the NIS and KID are released through the HCUP Central Distributor. In addition, many of the HCUP State Partners allow the public release of the HCUP State Inpatient Databases (SID) and State Ambulatory Surgery Databases (SASD) through the HCUP Central Distributor. Application Kits for purchasing the HCUP databases are available online at http://www.hcup-us.ahrq.gov or contact the HCUP Central Distributor directly. Information on how to obtain uniformly-formatted HCUP files from States not participating in the HCUP Central Distributor is also available from the HCUP Central Distributor:

HCUP Central Distributor
Social & Scientific Systems, Inc.
Phone: (866) 556-4287 (toll-free)
FAX: (301) 628-3201
E-mail: hcup@s-3.com

HCUP USER SUPPORT

HCUP User Support (HCUP-US) provides technical assistance to all HCUP users and is designed to facilitate the use of HCUP data, software tools, and products. The goals of this service are to increase awareness of the strengths and uses of HCUP data and to enhance the skills of individuals using the data for research, education, and policy analysis. A user-friendly Website for HCUP-US is located at http://www.hcup-us.ahrq.gov. This site includes links to information on how to purchase and understand the HCUP databases, as well as links to HCUP User Support Services and Frequently Asked Questions. For further information, consultants are available via both telephone and E-mail to help in planning analytic research and to offer advice about appropriate uses of HCUP data.

HCUPnet

HCUPnet is a Web-based query tool for identifying, tracking, analyzing, and comparing statistics on hospitals at the national, regional, and state level. With HCUPnet you have easy access to national statistics and trends and selected state statistics about hospital stays. HCUPnet guides you step-by-step to obtain the statistics you need. HCUPnet generates statistics using the Nationwide Inpatient Sample (NIS), the Kids' Inpatient Database (KID), and the State Inpatient Databases (SID) for those states that have agreed to participate. HCUPnet can be found at: http://www.ahrq.gov/data/hcup/hcupnet.htm.

TOOLS

AHRQ Quality Indicators (QIs) are clinical performance measures for use with readily available inpatient data. Methods and software for the AHRQ Quality Indicators can be downloaded from http://www.ahrq.gov/data/hcup/qinext.htm.

Clinical Classifications Software (CCS), formerly known as the Clinical Classifications for Health Policy Research (CCHPRs), are classification systems that group ICD-9-CM diagnoses and procedures into a limited number of clinically meaningful categories. Methods and software can be downloaded from http://www.ahrq.gov/data/hcup/ccs.htm.

Comorbidity Software assigns variables that identify comorbidities in hospital discharge records using ICD-9-CM diagnosis codes (International Classification of Diseases, Ninth Revision, Clinical Modification). Methods and software can be downloaded from http://www.ahrq.gov/data/hcup/comorbid.htm.

PUBLICATIONS

HCUP Research Notes report aggregate statistics and detailed analyses using HCUP data. To request copies, contact the AHRQ Publications Clearinghouse at (800) 358-9295 or send a postcard to: AHRQ Publications Clearinghouse, P.O. Box 8547, Silver Spring, MD 20907 or visit the AHRQ Website http://www.ahrq.gov/data/hcup/.

DATA USE AGREEMENT FOR THE NATIONWIDE INPATIENT SAMPLE

This agreement must be signed by anyone seeking to use data in the Nationwide Inpatient Sample (NIS) maintained by the Center for Delivery, Organization, and Markets (CDOM), Agency for Healthcare Research and Quality (AHRQ) before access to such data can be granted. All data maintained by CDOM/ AHRQ is confidential or proprietary except data specified for restricted access public release, or data authorized by AHRQ and the original data source for re-release.

Under section 924(c) of the Public Health Service Act (42 U.S.C. 299c-3(c)), data that identifies individuals or establishments collected by the Agency for Healthcare Research and Quality (AHRQ) may be used only for the purpose for which they were collected. Data supplied to AHRQ under the auspices of HCUP were provided by the data sources only for research, analysis, and aggregate statistical reporting.

No identification of persons--Any effort to determine the identity of any person contained in the databases (including but not limited to patients, physicians, and other health care providers) or to use the information for any purpose other than for research, analysis, and aggregate statistical reporting would violate the conditions of this data use agreement and therefore the above-referenced AHRQ confidentiality statute. Furthermore, under the statute, no identifying information may be published or released in any way without the consent of the person who supplied the information or who can be identified by the information. AHRQ omits from the data set all direct personal identifiers, as well as characteristics that might lead to identification of persons. It may be possible in rare instances, through complex analysis and with outside information, to ascertain from the data sets the identity of particular persons. Considerable harm could ensue if this were done. By virtue of this agreement, the undersigned agrees that such attempts will be prohibited and that information which could identify individuals directly or by inference will not be released or published. Because of these restrictions, users of the data must agree that they will not attempt to contact individuals for the purpose of verifying information supplied in the HCUP databases. Any questions about the data must be referred to AHRQ only.

Use of Establishment identifiers--Section 924(c) of the Public Health Service Act (42 U.S.C. 299c-3(c)) also restricts the use of any information that allows the identification of establishments to the purpose for which the information was collected. Permission was obtained from the data sources (state data organizations, hospital associations, and data consortia) to use the identification of hospitals (when such identification appears in the data sets) for the purpose of conducting research only. Such research purpose includes linking institutional information from outside data sets for analysis and aggregate statistical reporting. Such purpose does not include the use of information in the data sets concerning individual establishments for commercial or competitive purposes involving those individual establishments, or to determine the rights, benefits, or privileges of establishments. Users of the data must not identify establishments directly or by inference in disseminated material. In addition, users of the data must not contact establishments for the purpose of verifying information supplied in the HCUP databases. Any questions about the data must be referred to AHRQ only.

The undersigned gives the following assurances with respect to the AHRQ data sets.

- I will not use nor permit others to use the data in these sets in any way except for research, analysis, and aggregate statistical reporting;

- I will require others in the organization (specified below) who use the data to sign this agreement (specifically acknowledging their agreement to abide by its terms) and will submit those signed agreements to AHRQ;

- I will ensure that the data are kept in a secured environment and that only authorized users have access to the data;

- I will not release nor permit others to release any information that identifies persons, directly or indirectly; I will not release information where the number of observations (i.e., discharge records) in any given cell of tabulated data is less than or equal to 10;

- I will not release nor permit others to release the data sets or any part of them to any person who is not a member of the organization (specified below), except with the approval of AHRQ;

- I will not attempt to link nor permit others to attempt to link the hospital stay records of persons in this data set with personally identifiable records from any other source;

- I will not attempt to use nor permit others to use the datasets to learn the identity of any person included in any set;

- I will not use nor permit others to use the data concerning individual establishments (1) for commercial or competitive purposes involving those individual establishments, (2) to determine the rights, benefits, or privileges of individual establishments nor (3) to report, through any medium, data that could identify, directly or by inference, individual establishments;

- When the identities of establishments are not provided on the data sets, I will not attempt to use nor permit others to use the data sets to learn the identity of any establishment in the data sets;

- I will not contact nor permit others to contact establishments or persons in the data sets to question, verify, or discuss data in the HCUP databases;

- I will indemnify, defend, and hold harmless the data sources and AHRQ from any or all claims and losses accruing to any person, organization, or other legal entity as a result of violation of this agreement. This provision applies only to the extent permitted by federal law and regulation (i.e., to the extent permitted by 31 United States Code Section 1341 (Subtitle II, Chapter 13, Subchapter III, "Limitations on Expending and Obligating Amounts."));

- I will make no statement nor permit others to make statements indicating or suggesting that interpretations drawn are those of data sources or AHRQ;

- I will acknowledge in all reports based on these data that the source of the data is the "Healthcare Cost and Utilization Project (HCUP), Agency for Healthcare Research and Quality".

I understand that these assurances are collected for the United States Agency for Healthcare Research and Quality to require compliance with its statutory confidentiality requirement. My signature indicates my agreement to comply with the above-stated requirements with the knowledge that any violation of this statute is subject to a civil penalty of up to $10,000 under 42 U.S.C. 299c-3(d), and that deliberately making a false statement about this or any matter within the jurisdiction of any department or agency of the Federal Government violates 18 U.S.C. 1001 and is punishable by a fine of up to $10,000 or up to five years in prison. Violators of this agreement may also be subject to penalties under state confidentiality statutes that apply to these data for particular states.

Signed:_____ Date:_____

Print or Type Name:_____

Title:_____

Organization:_____

Address:_____

City: _____ State:_____ Zip code:_____

Phone Number:_____ Fax:_____ E-mail:_____

Note to Purchaser: Shipment of the data product will only be made to the person who signs this data use agreement.